

**Amendments to the claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

Claim 1 (currently amended)     A system for measuring optical characteristics comprising:

    a laser producing an excitation signal, wherein the laser is not a pulsed laser;

    a single-mode optical fiber coupled to the laser so that a coupled excitation signal is introduced into the optical fiber, wherein the coupled excitation signal is a continuous wave signal modulated at variable frequencies; and

    a first detector positioned to receive radiation backscattered by the optical fiber in response to the coupled excitation signal.

Claim 8.   (original)     The system of claim 1, further comprising a second detector positioned to receive radiation backscattered by the optical fiber in response to the coupled excitation signal and sensitive to a different spectrum of backscattered radiation frequencies than the first detector.